

**ABSTRACT OF THE DISCLOSURE**

A conductive barrier layer may be formed within high aspect ratio openings by a two-step ionizing sputter deposition. The first step is performed at low pressure and low bias power to obtain good coverage of upper portions of the openings. In the second step, the bias power and the pressure are raised to improved directionality of the particles while at the same time increasing the scatter events so that an increased deposition rate at critical structure areas is obtained, thereby achieving a good coverage at lower sidewall areas.